

# Pandemic Influenza Tracking in the DoD community on Oahu

A prototype project for Pandemic Influenza Preparedness and Response Concepts and Lessons Learned

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# Objectives

- Data tracking and management for Command and Public Health perspectives
- Facilitate "managing a pandemic as it happens!"
- Ease of use
  - Capture data where possible using common DoD tools (AHLTA and/or CHCS Legacy for front end)
  - Data retrieval using existing clinical repository
    - Clinical and Economic Outcomes (CEO)
    - Migrate to AHLTA Clinical Data Mart/Clinical Data Warehouse as these mature



## Our Influenza Tracking working

- Mike Brumage, COL, MC, Chief, Preventive Medicine
- William Jackson, CDR, USPHS
- Carmen Pilien, Lead Programmer
- Mary Schweikert, RN, Lead AIM form developer
- Joel Tanaka, Chief Technology Officer
- George Underwood, MD, Medical Informatics, Clinical Informatics, IMD, Project Lead
- Lonnie Wheeler and Jennifer Roddy, AIM form developers
- Brian White, PharmD, Clinical Pharmacologist
- Steve Yamada, Infection Control

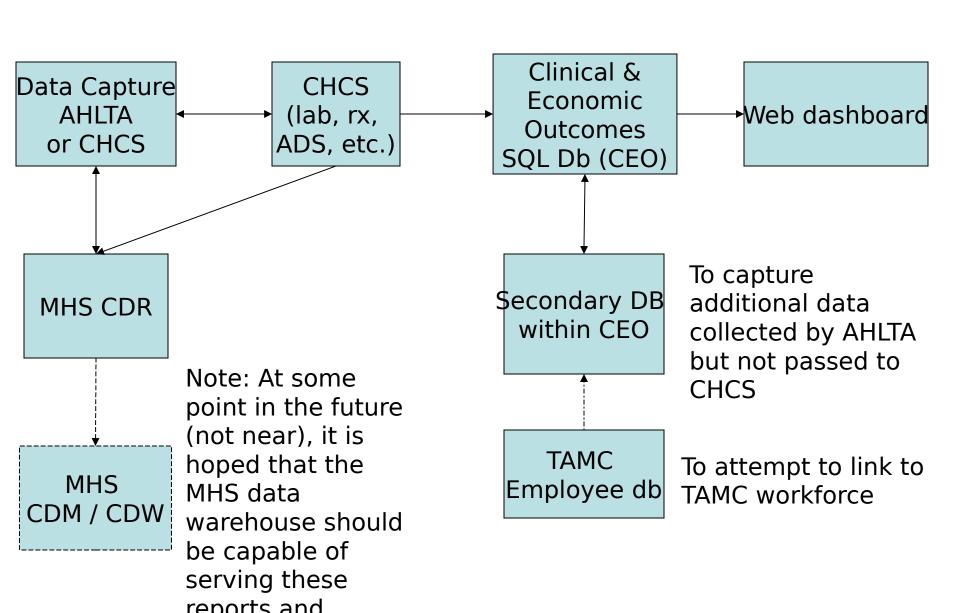
We've also had Tri-Service and other representation on an ad hoc basis:

Mylene Huynh, LTC, USAF, MC, FS (International Health Specialist, PACAF)

Lynda Vu, LTC, USAF, MC, Hickam Pamela Smith, MAJ, USAF, MC, SFS, Hickam Lorraine Nadkarni, CDR, SMO, NHC PH Mike Napier, Pacific Disaster Center Representative



## Data flow



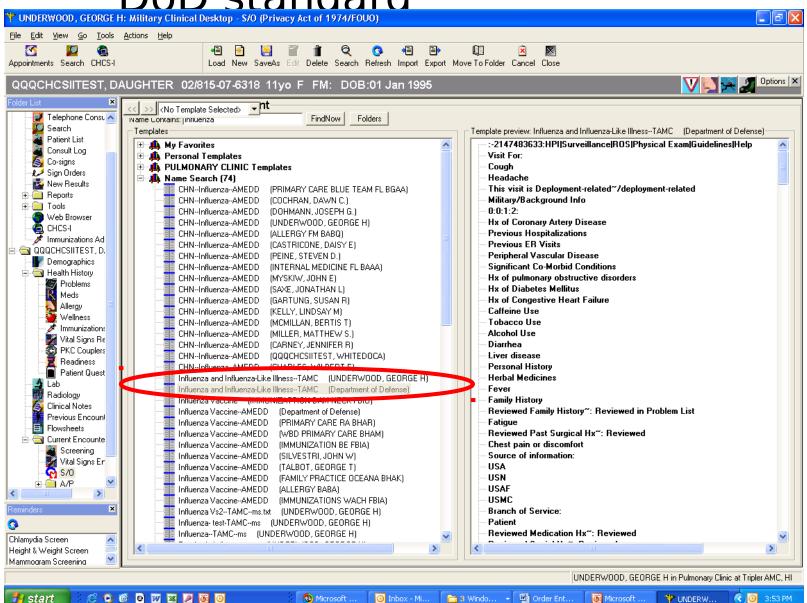


# Front-end Data Capture

- Use custom AHLTA AIM form to capture data
- Can also capture ICD-9 codes and orders from legacy CHCS
- May use paper copies of AIM forms in ER or during AHLTA down times



Our influenza AIM form is now a DoD standard



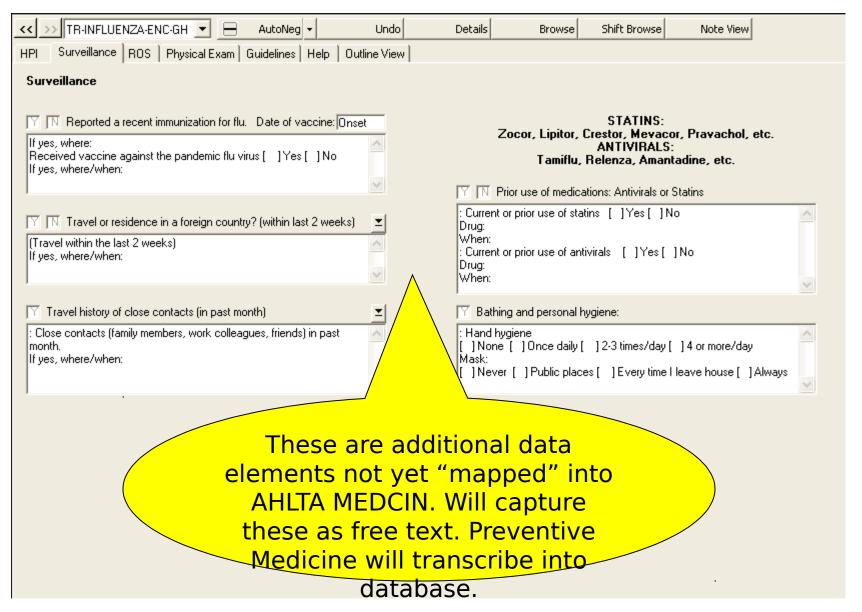


## AHLTA Influenza AIM form - HPI tab

<< >> TR-INFLUENZA-ENC-GH ▼ E	AutoNeg ▼	Undo	Details	Browse	Shift Browse	Note View	
HPI   Surveillance   ROS   Physical Exam	Guidelines Help	Outline View					
II.	NFLUENZA and I	NFLUENZA-LIKE I	LLNESS AIM	FORM			
		ould be used wher			ex		
suggestive of influenza (pandemic or sporadic) is suspected.							
∏ Referred here	Past I	Medical / Surgical	History	<b>=</b>  □  .	Personal History		
by:		Reviewed Past Medica	al Hx		☐ Reviewed Soc	ial Hx	<b>≖</b>  □
Y Hx of Present Illness		Reviewed Past Surgica	al Hx		▼   N Tobacc	o Use	<b></b>
		Reviewed Medication I	Hx		X N Alcohol	Use	<b></b> □
	Y	N Reviewed Allergy I			☐ ☐ Caffeine	Use	<u> </u>
	IV.	no known drug alle  N Previous Hospitaliz		√I⊓I	Herbal N	/ledicines	<b></b> □
	Y TY	N Previous ER Visits			☐ N Drug Us		<u> </u>
Y N Fever	믜				Regular E:	xercise	
Chills		icant Co-Morbid Co	nditions	<b>≥</b>  □			
▼ N Fatigue		N Hx of pulmonary ot			Family History		
▼ N Generalized pain: Body ache	믜	disorders			Reviewed Fam	nily History	_ □
M Headache		N Hx of Hypertension			M:::: JD I	4 1_6_	
∏ N Earache		N Hx of Coronary Art	•		Military/Backgrou		
Nasal discharge		N Hx of Congestive H			This visit is E  Branch of Service:	· • _	G 11011
Sore throat		N Hx of Diabetes Me N Liver disease	ilitus		biariori di Service.	© USAF	© USN ⊚ USNC
Y   N Chest pain or discomfort   Y   N Cough	- 븸 - 분!	N Kidney disease			Source of informati		IO DOME
Y N New		N Peripheral Vascula	r Disassa			on. I ratient of patient information	on: ▼□
Y N Chronic		n i elipilelai vascula	i Discase		Trenability of source	s or padent initotitiati	on: <u>▼</u> □
Y N Vomiting		concerns/Subjective i	nformation:	<u>~</u>			
Y N Diarrhea	O'mer						
TN Joint stiffness, localized	旹			J		edcin Form: 022) Influenza	706
1. 1						mideliza	



### AHLTA Influenza AIM form - Surveillance tab





## AHLTA Influenza AIM form - ROS tab

TR-INFLUENZA-ENC-GH ]	▼   Aut	oNeg 🕶	Undo	Details	Browse	Shift Browse	Note View	
HPI Surveillance ROS Physica	al Exam   Guidel	ines   Help   0	lutline View					
Review of Systems	<b>_</b>							
ROS Unobtainable			<mark>Pulmonary Sympto</mark> Dyspnea			Y N Skin Syr	mptoms	<b>▼</b> □ <sub>R05</sub>
Other Constitutional Symptoms  W N Wt loss (lbs)	<u> </u>		Recent	<u> </u>		Lesions		▼ □ <sub>RD</sub> 5
Night Sweats	D ROS	M	Coughing up sputur Coughing up blood	<u> </u>		Sympton	ns IS	□ <sub>R05</sub>
	<u>▼</u> □ <sub>80</sub> 5	T	Wheezing New Chronic			Y N Arthralg	gical_	
Y N Eye Symptoms Watery discharge	<u>▼</u> □ <sub>R05</sub>	M	Chest Congestion Rapid Breathing			Sympton   Y   N Convuls   Y   N Confuse	sions	RD5
Y N ENT Symptoms Y N Pain around the ear	Y   RD5	9	iastrointestinal iymptoms	<b>▼</b> □ <sub>R</sub> □5		N Letharg	-	□ <sub>RD</sub> 5
	<u>▼ □ 805</u>	м М М	Abdominal pain Nausea Swelling/Bloating	<b>▼</b> □ <sub>R05</sub>		Psycholo Sympton S Sleep d	<u>ns</u>	<u> </u>
▼ N Stiffness ▼ N Endocrine Symptoms	<b>▼</b> □ <sub>80</sub> 5	M	Constipation  Decrease in appetit			ROS Free Text	:	ROS
Y   N   Cardiovascular   Symptoms   Y   N   Palpitations	<b>▼</b> □ <sub>80</sub> 5	<u>9</u>  Y  N	<b>Senitourinary</b> Symptoms Dysuria Polyuria					
j i jii i dipiddoris		I I IN	i olyuna					<u> </u>



## AHLTA Influenza AIM form – Physical Exam tab

<< >> TR-INFLUENZA-ENC-GH ▼ ⊟	AutoNeg	▼ Undo	Details	Browse	Shift Browse	Note View	
HPI Surveillance ROS Physical Exam	Guidelines	Help Outline View					
Vital Signs            □ Reviewed Current Vital Signs         □ Reviewed Pain Level         □ Reviewed Body Mass Index             □ Reviewed Body Mass Index         □ National Appearance         □ National National Appearance         □ National Nat	<u> </u>	Skin Exam  A N Color/Pigment A N Skin lesion(s) Y N Skin Turgor  Cardiovascular Exam A N Rate and Rhyt A N Heart Sounds Y N Murmur heard		*	☐ N Bowel	Enlargement n Enlarged I Sounds nen Tenderness E <b>xam</b> nd Stance	¥
Head Exam  A N Head Appearance  Eve Exam  A N PERRLA  A N Extraocular Movements  A N Conjunctiva  ENT Exam  A N Nasal Mucosa		Lunq Exam  A N Auscultation  Y N Wheezing hea  Y N Rhonchi heard  Y N Rales/crackles  A N Chest Percussi  Y N Dullness  Y N Hyperresona	d s heard ion	*	Norma	al movement of all extremiti	
A N Tympanic Membranes A N Oropharynx  Neck Exam Y N Tenderness Y N Decrease in Suppleness Y N Nodes Enlarged	¥ D ¥ D ¥ D ¥ D	Rapid Influenza Test  Y N Rapid Influenza Antigen positive?  Do not check box be  Y N Serum Culture Information Swab or wash sp	Test - Influenza A/B ? : <b>low unless tests a</b> fluenza Virus Type A H		Chest XRay (p	p <b>ast med hx)</b> d Tests: Chest X-ray	<b>Y</b>



### AHLTA Influenza AIM form - Guidelines tab

TR-INFLUENZA-ENC-GH  AutoNeg +	Undo	Details	Browse	Shift Browse	Note View
HPI   Surveillance   ROS   Physical Exam   Guidelines   Help	Outline View				
This form is specifically designed upper respiratory virus. This f	gned for patients				

SINGLE BEST WAY TO PREVENT AGAINST THE FLU:

#### **GOOD HEALTH HABITS**

- 1. Avoid close contact with people who are sick.
- 2. Stay home when you are sick.
- 3. Cover your mouth and nose when coughing/sneezing.
- 4. Wash hands OFTEN.
- Avoid touching your eyes, nose or mouth to decrease spread of germs.
- 6. Use a face mask as directed by health authorities.

#### WHO ARE CONSIDERED CONTACTS?

Contacts are persons who shared a defined setting (household, extended family, hospital or other residential institution, military barracks or recreational camps) with a person for whom the diagnosis of influenza A (H5N1) is being considered while this person was in his or her infectious period (i.e., from 1 day before onset of symptoms to 7 days after onset of symptoms).

#### FOR MORE INFORMATION GO TO:

www.pandemicflu.gov

#### 2 ANTIVIRAL DRUGS

- 1. Oseltamivir (Tamiflu)
- 2. Zanimivir (Relenza)

CDC does NOT recommend use of Amantadine and Rimantadine for treatment or prevention of Influenza A in the U.S. for the 2005-6 influenza season.

### HOW TO OBTAIN A NASOPHARYNGEAL WASH IN ADULTS AND OLDER CHILDREN:

#### SUPPLIES:

Sterile urine cup; tissues; 5 or 10cc syringe with normal saline

- Give patient uncapped urine cup in one hand, tissues in the other.
- Tell patient to take a deep breath and hold it, and tilt his or her head back.
- Instill 5cc of saline rapidly into one nostril and have patient immediately tilt head forward again and blow as much saline and mucus into the cup as possible.
- Use the tissues to clean up.
- Label the cup and send to the lab for flu A and B antigen and respiratory viral culture.



# Common influenza-like ICD9 codes

<< >>	TR-INFLUENZA-ENC-GHU Problem List Favorite Lists Search Find Now					
ICD	Diagnosis					
487.1	INFLUENZA					
487.1	INFLUENZA A H5N1					
487.1	INFLUENZA WITH OTHER URI MANIFESTATIONS					
487.8	8 INFLUENZA WITH GASTROINTESTINAL MANIFESTATIONS					
487.8	INFLUENZA WITH ENCEPHALOPATHY					
487.1	INFLUENZA B					
487.1	INFLUENZA C					
008.8	GASTROENTERITIS VIRAL					
465.9	UPPER RESPIRATORY INFECTION ACUTE					
460	COMMON COLD					
049.9						
480.9	VIRAL PNEUMONIA					
1						
	Add to Encounter Add to Favorite List					



# AHLTA influenza order set

0.1	1.1 17	٦.,	D . 3
Select	Modify		Details Details
2 🗆		HEPATIC FUNCTION PANEL	Routine BLOOD
2 ⊔	Ш	CBC WITH DIFF	Routine BLOOD
2 🗆		RAPID INFLUENZA IDENT(NAVY ONL	Routine THROAT
<b>2</b> 🗆		INFLUENZA A&B ANTIGEN PANEL	Routine NASOPHARYNGEAL
2 🗆		VIRAL CULTURE	Routine NASOPHARYNGEAL
\$ □		CHEST, PA/LAT	Routine
₹ 🗆		BENZONATATEPO 100MG CAP	T 1-2 C TID P FC (DO NOT CHEW) #20 RF0 QTY 20 RF 0
$\mathbb{R} \square$		GUAIFENESIN/D-METHOR (ROBITUSSIN-DM)PO	UD #120 RF0 QTY 120 RF 0
₹ 🗆		IBUPROFENPO 800MG TAB	T1 TB PO TID WMOM #30 RF0 QTY 30 RF 0
₹ 🗆		LORATADINE (CLARITIN)PO 10MG TAB	T1 TB PO QD #30 RF0 QTY 30 RF 0
₹ 🗆		OXYMETAZOLINE (AFRIN)NAS 0.05% SPRA	USE 1-2 SPRAYS IN EACH NOSTRIL BID (DO NOT EXCEE
₹ 🗆		ACETAMINOPHENPO 325MG TAB	T1-2 TAB PO Q4-6H PP (MAX 12 TABS DAILY) #100 RF0 Q
₹ □		OSELTAMIVIR (TAMIFLU)PO 75MG CAP	T1 TAB PO BID #10 RF0 QTY 10 RF 0
<b>€</b> □	$\Box$	P-EPHED/GUAIF (SR)PO 120MG/600MG TBSR	T 1 TAB PO Q12H #20 RF0 QTY 20 RF 0
X		TETTEBRAGAII (GTI) TO TEGMARGOGINA TEGIT	1 1 1/10 0 0 1211 #20111 0 011 20 111 0

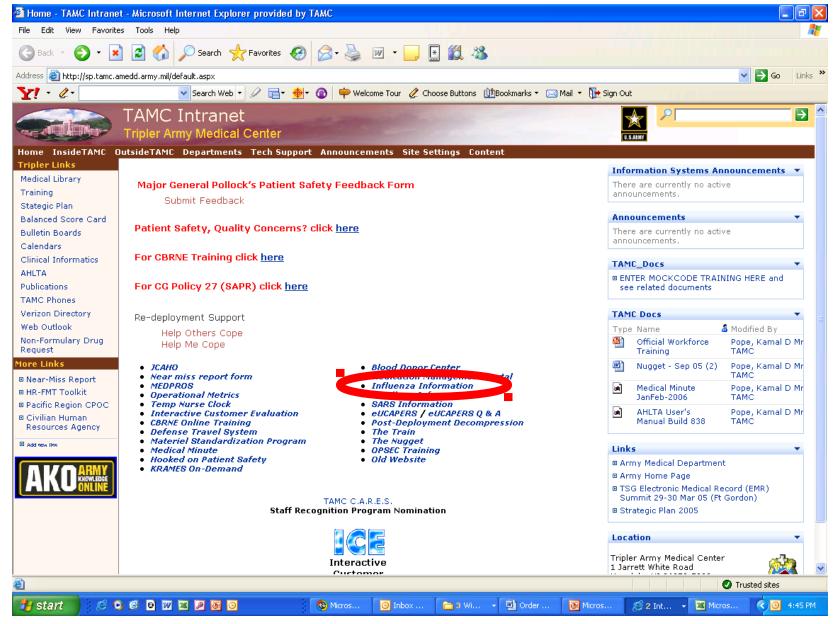


## Reports

- Use locally developed data repository
- Two avenues, both on TAMC Intranet
  - Public data for the DoD medical community at large
  - Private data (PHI) To allow the planners to track individual case information



## Tripler Intranet - Main Page





## Influenza Information Main Page

#### Influenza Tripler Army Medical Center

Home InsideTAMC OutsideTAMC Departments Tech Support Announcements Site Settings Content

Tripler Links

Medical Library Training Stategic Plan

Balanced Score Card

Bulletin Boards

Calendars

Clinical Informatics

AHLTA

**Publications** TAMC Phones

Verizon Directory

Web Outlook

Non-Formulary Drug Request

#### LeftMenu

Pandemic Flu

Add new link



#### Influenza Tracking Command Dashboard

The following pages will change periodically as new functionality is added.				
Reports of general interest	These reports do not contain Protected Health			
	Information (PHI).			
Patient-specific reports (locked by secure access	These reports contain PHI and will be used			
to authorized users only)	solely by authorized users for specific medical			
	need.			

#### Influenza Announcements

#### Influenza Air Travel and the Honolulu Airport

by Furutani, Curtis Y Mr.

One of our working group members (CDR Will Jackson) participated in this ABC News broadcast addressing the issue of influenza spread on airlines and how the Honolulu airport is preparing to meet this threat. This is a video with sound.

http://www.abcnews.go.com/Video/playerIndex?id=1718577

#### Influenza CHCS Order Set - Available now in CHCS

by Furutani, Curtis Y Mr.

http://sp.tamc.amedd.army.mil/mchk-pv/influenza/Documents/Influenza%20CHCS%20Order%20Set%20-% 20Available%20now%20in%20CHCS.ppt

Add new announcement

The Command Dashboard portal for live and static reports

<b>V</b>	Command Dashboard	<u>Furutani.</u> Curtis Y Mr
2	Influenza CHCS order	Furutani,

CHCS Influenza air travel Furutani.

threat and the Honolulu Curtis Y Mr airport

Influenza AIM form - in Furutani. test mode in FP

set - available now in

Curtis Y Mr

Add new document

#### Meeting and Agenda Notes

Pandemic Influenza Tracking Application 2006 05 22 NEW

Type Name

Modified By Furutani, Curtis Y Mr

Curtis Y Mr

Pandemic Influenza Tracking Application 2006 05 15

Furutani, Curtis Y Mr

Pandemic Influenza Tracking Application 2006 05 08

Furutani, Curtis Y Mr

(More Items...)

Add new document

Content Manager

For questions about the content on this page

Microsoft PowerPoint - [Pandemic Influenza Tracking in the DoD community.ppt]























5/18/2006 8:31 AM

5/18/2006 8:29 AM











3:57 PM





# Command Dashboard

### Influenza Tracking Command Dashboard

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Reports of general interest	These reports do not contain Protected Health			
	Information (PHI).			
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to authorized users only)	solely by authorized users for specific medical			
	need.			



## Public Reports of General

#### Intoract

#### INFLUENZA TRACKING REPORTS AND GRAPHS

Available Date Range: 10/1/2005 to 5/8/2006

Cases by Status

Cases by Patient Category

Cases by Disposition Code

Cases by Patient Age

Influenza Statistics FY05

Viral Statistics FY05

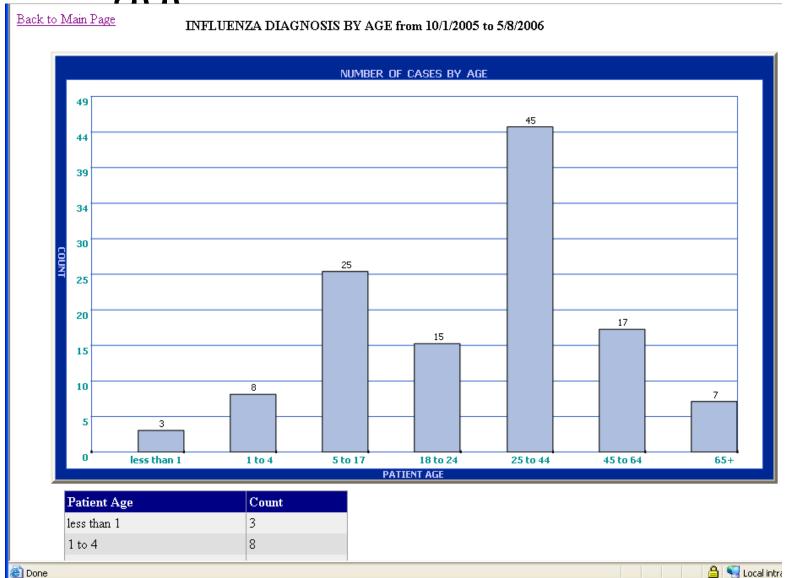
Viral Statistics Weekly FY06

Count of Influenz	a DX
Start Date:	■By Day
End Date:	■By Month
Submit	Clear Check Boxes



# Influenza-like illnesses by

ane

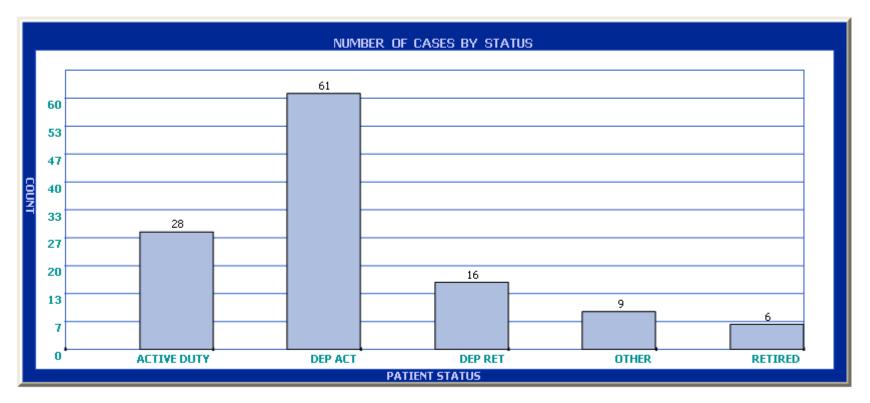




# Influenza patients by patient

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INFLUENZA DIAGNOSIS BY STATUS from 10/1/2005 to 5/8/2006



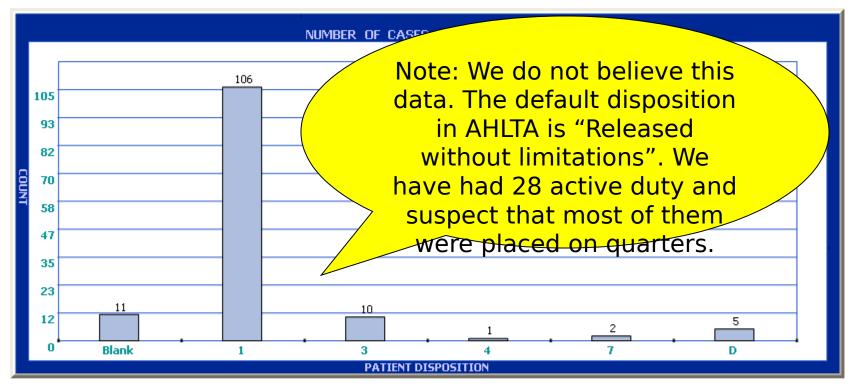
Count	Patient Status
28	ACTIVE DUTY
61	DEP ACT
16	DEP RET
9	OTHER
6	RETIRED



# Influenza-like patients by

Back to Main Page

INFLUENZA PATIENTS BY DISPOSITION CODE from 10/1/2005 to 5/8/2006



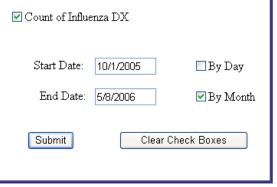
Count	Disposition Code	Disposition Description
11	Blank	Telcons
106	1	Released without limitations
10	3	Sick at home/quarters
1	4	Immediate referral
2	7	Admitted
5	D	Continued Stay

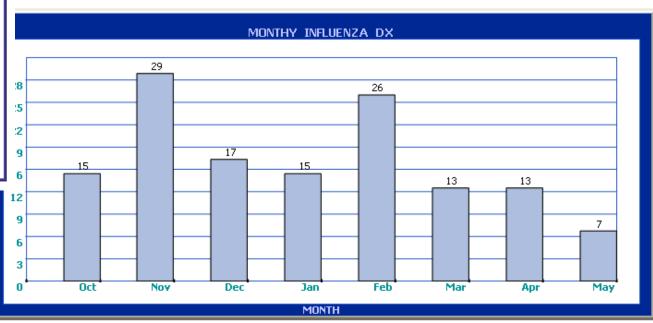


# Cases by Month

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MONTHLY COUNT OF INFLUENZA DIAGNOSIS FROM 10/1/2005 TO 5/8/2006



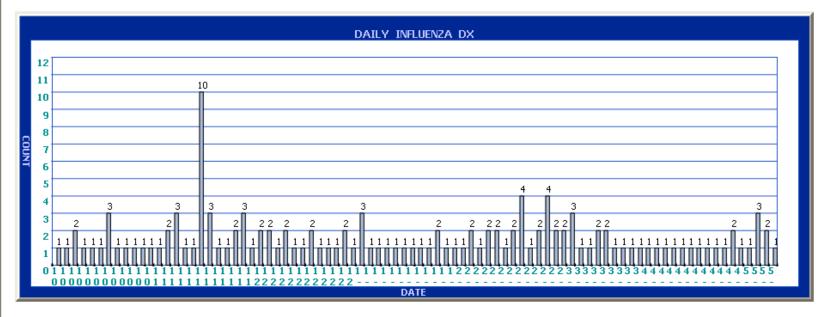


Date	Count
Oct	15
Nov	29
Dec	17
Jan	15
Feb	26
Mar	13
Apr May	13
May	7



# Cases by day





Date	Count
Oct-1	1
Oct-2	1
Oct-4	2
Oct-6	1
Oct-7	1
Oct-11	1
Oct-20	3
Oct-21	1
Oct-24	1







## Influenza Tracking Command Dashboard

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	Information (PHI).			
Patient-specific reports (locked by secure access	These reports contain PHI and will be used			
to authorized users only)	solely by authorized users for specific medical			
	need.			



## Authorized users have access to PHI reports

#### INFLUENZA TRACKING REPORTS AND GRAPHS

Available Date Range: 10/1/2005 to 5/8/2006

Cases by Status

Cases by Patient Category

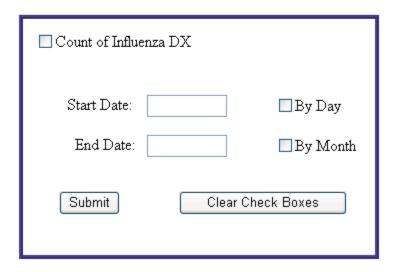
Cases by Disposition Code

Cases by Patient Age

Influenza Statistics FY05

Viral Statistics FY05

Viral Statistics Weekly FY06





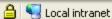


# Authorized user reports

Back to Main Page Influenza Patient Tracking Reports Available Date Range: 10/1/2005 to 5/8/2006 Patient Immunizations Flu Patient LABS ☐ Influenza Patients All Patients with Influenza LABS Flu Patients Influenza LABS Patient Appointments Patient RX Get Report Flu Related RX All Patients w/Antivirals Influenza Lab Tests









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# Alpha list of all patients given clinical diagnosis of influenza illness.

ALL PATIENTS DIAGNOSED WITH INFLUENZA from 10/1/2005 to 5/15/2006

PATIENT	PATCAT	STATUS	PATIENT IEN	AGE	SEX	<u>UNIT</u>
	N43	DEP RET		14	M	
	A43	DEP RET		17	M	
	A41	DEP ACT		21	F	
	N41	DEP ACT		4	M	
	N41	DEP ACT		6	M	
	N11	ACTIVE DUTY		30	М	NAVPACMETOCCEN/IIWC
	N11	ACTIVE DUTY		24	М	AVN SPT ELE 1 MAW K-BAY
	N41	DEP ACT		11	F	
PHI	F11	ACTIVE DUTY	PHI	25	м	00 0730 AIR MOBILI SQ
	A41	DEP ACT		17	F	
	N41	DEP ACT		14	F	
	N41	DEP ACT		20	F	
	N11	ACTIVE DUTY		36	М	FLETRACEN 3975 NORMAN SCOTT RD
	A41	DEP ACT		4	F	
	C11	ACTIVE DUTY		26	F	CG STA HONOLULU
	N31	RETIRED		74	М	



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# Alpha list of all patients given clinical diagnosis of influenza illness. May sort by column headings (such

asplants) Diagnosed with influenza from 10/1/2005 to 5/15/2006

PATIENT	PATCAT	STATUS	PATIENT IEN	AGE	SEX	One of our
	A11	ACTIVE DUTY		38	F	W7QS Tripler
	A11	ACTIVE DUTY	2	26	F	W3U4 CENTE Clinicians
	A11	ACTIVE DUTY		30	М	W07C TAMC MED COB
	N11	ACTIVE DUTY		32	М	VPU 2
	A11	ACTIVE DUTY		27	м	UNKNOWN
PHI	N11	ACTIVE DUTY	PHI	29	м	UNKNOWN
	N11	ACTIVE DUTY		43	м	SUBMARINE FORCE US PACIFIC FLE
	N11	ACTIVE DUTY		28	М	PATRON NINE
	N11	ACTIVE DUTY		21	F	NAVSECGRUACT
	N11	ACTIVE DUTY		30	м	NAVPACMETOCCEN/JTWC
	N11	ACTIVE DUTY		23	м	HSL THREE SEVEN
	N11	ACTIVE DITTY		36	М	FLETRACEN 3975 NORMAN SCOTT



# Reports can be exported to Excel for additional analysis

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ALL PATIENTS DIAGNOSED WITH INFLUENZA from 10/1/2005 to 5/8/2006

PATIENT	PATCAT	<u>STATUS</u>	- 1-	PATIENT IEN	AGE	SEX	UNIT
Back	A43	DEP RET	-	1	17	М	
Forward	A41	DEP ACT		1	21	F	
	N41	DEP ACT	-	1	4	М	
Save Background As	N41	DEP ACT		1	6	М	
Set as Background Copy Background Set as Desktop Item	N11	ACTIVE DUTY	-	1	24	М	AVN SPT ELE 1 MAW K-BAY
Select All	N41	DEP ACT		1	11	F	
Paste Create Shortcut	- F11	ACTIVE DUTY	-	1	25	М	00 0730 AIR MOBILI SQ
Add to Favorites View Source	A41	DEP ACT	-	PHI	17	F	
Encoding	N41	DEP ACT		FIII	20	F	
Print Refresh	N11	ACTIVE DUTY	-	1	36	М	FLETRACEN 3975 NORMAN SCOTT RD
Export to Microsoft Excel	A41	DEP ACT		1	4	F	
Properties	C11	ACTIVE DUTY	-	1	26	F	CG STA HONOLULU
	N31	RETIRED	2		74	М	
PHI	M48	OTHER		1	62	F	
1111	K61	OTHER	-	1	26	М	
	A31	RETIRED	3	2	56	М	





# All patient appointments by

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ALL PATIENT APPOINTMENTS WITH INFLUENZA ICD9 CODES 487 from 10/1/2005 to 5/8/2006

PA	<u>FIENT</u>	APPT DATE	ICD CODE	DIAGNOSIS	CLINIC	PATIENT IEN
ΑG		3/13/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	ADOLESCENT & YOUNG ADULT CLIN	
AL		12/23/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	SB FAMILY PRACTICE SERVICE	
AL		3/1/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	PH PEDS CLINIC	
AL		3/1/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	PH PEDS CLINIC	
ΑF		12/5/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	KB AVIATION MEDICINE CLINIC	
ВА		2/6/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	PH PEDS CLINIC	
ВА		10/4/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	EMERGENCY RM	
ВА		11/3/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	SB FAMILY PRACTICE SERVICE	
BE		12/5/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	OBSTETRICS	
BE		11/10/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	EMERGENCY RM	
BE		11/18/2005 12:00:00 AM	487.8	FLU W MANIFESTATION NEC	EMERGENCY RM	
BIS	PHI	12/11/2005 12:00:00 AM	487.8	FLU W MANIFESTATION NEC	EMERGENCY RM	PHI
BL		1/24/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	ADULT MEDICINE CLINIC	
CA		2/27/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	ADULT MEDICINE CLINIC	
CA		3/17/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	EMERGENCY RM	
CA		2/17/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	SB ACUTE CARE CLINIC	
CA		11/7/2005 12:00:00 AM	487.8	FLU W MANIFESTATION NEC	SY OCCUPATIONAL HEALTH CLINIC	
CA		3/16/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	SB FAMILY PRACTICE SERVICE	
CE		2/21/2006 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	SB ACUTE CARE CLINIC	
СН		10/6/2005 12:00:00 AM	487.0	INFLUENZA WITH PNEUMONIA	SB FAMILY PRACTICE SERVICE	
CL		10/4/2005 12:00:00 AM	487.8	FLU W MANIFESTATION NEC	FAMILY PRACTICE CLINIC TAMC	
CL		2/13/2006 12:00:00 AM	487.8	FLU W MANIFESTATION NEC	PH PEDS CLINIC	
DE		10/7/2005 12:00:00 AM	487.1	FLU W RESP MANIFEST NEC	EMERGENCY RM	





# Patients identified by influenza-like ICD9 and whether or not they had influenza

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#### INFLUENZA IMMUNIZATIONS IN THE PAST 12 MONTHS

PATIENT NAME	DATE OF DIAGNOSIS	IMMUNIZATION	DATE ADMINISTERED	PATIENT IEN
A	2005-12-23			
В	2005-10-04			
В	2005-12-05			
В	2005-11-10	INFLUENZA (SPLIT)	2005-11-28	
В	2005-12-11			
В	2006-01-24	INFLUENZA (SPLIT)	2005-11-08	
d	2006-03-17			
d	2006-02-17			
d	2006-9			
PHI				PHI
		INFLUENZA (SPLIT)	2005-11-03	
NOTE: We	e will lose			
🗈 🖊 this tr	acking \	INFLUENZA (SPLIT)	2005-12-12	
F capability	when we			
	AHLTA to			
	ack			
F. III MHUH	izations   2005-11-28			
G	2005-10-02			
				📋 🥞 Local intran



## Our identified influenza patients and pertinent labs

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#### ALL RELATED LABS FOR PATIENTS DIAGNOSED WITH INFLUENZA

PATIENT NAME	APPT DATE	LAB TEST	SPECIMEN DATE	RESULT	PATIENT IEN
Ba	2005-11-03	INFLUENZA VIRUS A AG	2005-11-03	И	
B <sub>4</sub>	2005-11-03	INFLUENZA VIRUS B AG	2005-11-03	И	
BI	2005-12-05	HEMOGLOBIN	2005-12-31	13.3	
BI	2005-12-05	HEMOGLOBIN	2006-01-02	8.1	
BI	2005-12-05	LYMPHOCYTES/100 WBC	2005-12-31	21.0	
BI	2005-12-05	PLATELETS	2005-12-31	120	
BI	2005-12-05	PLATELETS	2006-01-02	88	
BI	2005-12-05	LYMPHOCYTES/100 WBC	2006-01-02	27.4	
BI	2005-12-05	WBC COUNT	2005-12-31	11.3	
BI PHI	2005-12-05	WBC COUNT	2006-01-02	8.5	PHI
BI	2005-11-10	HEMOGLOBIN	2006-01-29	15.5	
BI	2005-11-10	LYMPHOCYTES/100 WBC	2006-01-29	28.9	
BI	2005-11-10	PLATELETS	2006-01-29	202	
BI	2005-11-10	WBC COUNT	2006-01-29	6.8	
BI	2006-01-24	LYMPHOCYTES/100 WBC	2006-04-03	29.5	
BI	2006-01-24	PLATELETS	2006-04-03	303	
BI	2006-01-24	WBC UA	2006-01-24	3	
BI	2006-01-24	HEMOGLOBIN	2006-04-03	14.6	
771 60 0	2000 01 04	una aoram	2000 04 02	0.3	



## Our patients and specific influenza tests

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#### FLU RELATED LABS FOR PATIENTS DIAGNOSED WITH INFLUENZA

PATIENT NAME	APPT DATE	LAB TEST	SPECIMEN DATE	RESULT	PATIENT IEN
A	2006-03-13				
A	2005-12-23				
B	2005-10-04				
Ba	2005-11-03	INFLUENZA VIRUS A AG	2005-11-03	И	
B <sub>4</sub>	2005-11-03	INFLUENZA VIRUS B AG	2005-11-03	И	
BI	2005-12-05				
BI	2005-11-10				
BI PHI	2005-11-18				PHI
ВІ	2005-12-11				
ВІ	2006-01-24				
C.	2006-02-27	INFLUENZA VIRUS A AG	2006-02-27	И	
C.	2006-02-27	INFLUENZA VIRUS B AG	2006-02-27	И	
c.	2006-03-17				
c.	2006-02-17				
€ Done	2005 11 02				S Local intranet

TOTAL	WITH LABS	PERCENT
137	20	15



# All patients having had specific influenza tests

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#### FLU RELATED LABS FOR ALL PATIENTS SINCE OCTOBER 2005

PATIENT NAME	LAB TEST	SPECIMEN DATE	RESULT	PATIENT IEI
	INFLUENZA VIRUS A AB	2005-10-16	8	
	INFLUENZA VIRUS A AB	2005-10-21	16	_
	INFLUENZA VIRUS A AB	2005-11-09	8	
	INFLUENZA VIRUS A AB	2005-11-23	<8	
	INFLUENZA VIRUS A AB	2006-01-14	16	
	INFLUENZA VIRUS A AB	2006-02-13	<8	
	INFLUENZA VIRUS A AB	2006-03-25	16	
	INFLUENZA VIRUS A AB	2006-04-07	<8	_
	INFLUENZA VIRUS A AG	2005-10-04	И	
PHI	INFLUENZA VIRUS A AG	2005-10-07	И	PHI
	INFLUENZA VIRUS A AG	2005-10-11	И	
	INFLUENZA VIRUS A AG	2005-10-11	И	
	INFLUENZA VIRUS A AG	2005-10-12	И	_
	INFLUENZA VIRUS A AG	2005-10-13	И	
	INFLUENZA VIRUS A AG	2005-10-17	И	_
	INFLUENZA VIRUS A AG	2005-10-19	И	
	INFLUENZA VIRUS A AG	2005-10-19	И	
	INFLUENZA VIRUS A AG	2005-10-20	И	
	INFLUENZA VIRUS A AG	2005-10-20	N	



## Our patients and pertinent prescriptions

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#### RELATED PRESCRIPTIONS FOR INFLUENZA PATIENTS

Data based on RX dispensed dates after 30SEP2005

PATIENT NAME	FILL DATE	DISPENSED DATE	DRUG NAME	DX DATE
A	2006-02-07	2/7/2006 9:29:00 AM	ALBUTEROL-INH 0.083%/VIAL SOLN	2006-03-01
A	2006-02-01	2/1/2006 11:45:00 AM	ALBUTEROL (PROVENTIL)INH 90MCG AERO	2006-03-01
A	2006-02-01	2/1/2006 11:45:00 AM	FLUTICASONE (FLOVENT HFA)INH 110MCG	2006-03-01
A	2006-02-01	2/1/2006 11:45:00 AM	PREDNISOLONE (ORAPRED)PO 3MG/ML SYRP	2006-03-01
A	2006-02-08	2/8/2006 8:41:00 AM	FLUTICASONE (FLOVENT HFA)INH 110MCG	2006-03-01
A	2006-02-08	2/8/2006 8:41:00 AM	PREDNISOLONE (ORAPRED)PO 3MG/ML SYRP	2006-03-01
E	2006-01-10	1/10/2006 10:47:00 AM	FLUTICASOUP	2006-02-06
Б	2006-01-10	1/10/2006 10:47:00 AM	T 1' C' 1'	2006-02-06
Б	2006-02-14	2/14/2006 3:53:00 P	Tracking Statins to	2006-02-06
<b>I</b>	2006-02-14	2/14/2006 3:53:00	assess role in	06-02-06
E E E P H E E	2006-02-14	2/14/2006 3:53:00 P		2006-02-06
	2006-04-10	4/10/2006 12:43:00 PM	reducing	2006-02-06
	2006-01-24	1/24/2006 3:24:00 PM	AIP OR DICHELL ALE ALE ALE PROVENTIL) INH 90MCG AERO	2006-01-24
	2006-03-11	3/16/2006 11:06:00 AM	ALE AOL (PROVENTIL)INH 90MCG AERO	2006-01-24
q	2005-10-02	10/4/2005 4:25:00 PM	SIMVASTATIN (ZOCOR)PO 5MG TAB	2006-02-27
d	2005-10-25	10/25/2005 4:32:00 PM	SIMVASTATIN (ZOCOR)PO 5MG TAB	2006-02-27
d	2006-02-07	2/7/2006 4:29:00 PM	SIMVASTATIN (ZOCOR)PO 5MG TAB	2006-02-27
F G	2006-01-11	1/11/2006 10:04:00 AM	IPRATROPIUM (ATROVENT)NAS 0.03% SPRA	2006-01-11
	2005-10-26	10/26/2005 11:21:00 AM	ALBUTEROL (PROVENTIL)INH 90MCG AERO	2005-10-24
q	2005-12-07	12/7/2005 9:08:00 AM	METHYLPREDNISOLONE (MEDROL) PACK-4MG TAB	2005-11-07
н	2006-04-20	4/20/2006 12:57:00 PM	ALBUTEROL (PROVENTIL)INH 90MCG AERO	2006-04-19
T	2004 04 20	400 0004 10.57.00 DM	DDEDMISOLOME OD ADDEDVIDO SPACINAL SYDD	2006.04.10
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## Our patients and specific prescriptions

ANTIVIRAL PRESCRIPTIONS FOR INFLUENZA PATIENTS

PATIENT NAME	RX DATE	DISPENSED DATE	DRUG NAME	PATIENT IEN	
	3/1/2006	3/1/2006 4:05:00 PM	OSELTAMIVIR (TAMIFLU)PO 75MG CAP		
	2/7/2006	2/7/2006 4:46:00 PM	OSELTAMIVIR (TAMIFLU)PO 75MG CAP		
PHI	5/13/2006	5/13/2006 8:45:00 PM	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	PHI	
	2/2/2006	2/2/2006 10:08:00 AM	OSELTAMIVIR (TAMIFLU)PO 75MG CAP		
	3/31/2006	3/31/2006 12:36:00 PM	OSELTAMIVIR (TAMIFLU)PO 75MG CAP		
1					

TOTAL # OF	# WITH FLU RELATED	PERCENT WHO
PATIENTS	RX	RECEIVED RX
137	5	4%







# All patients who have received specific antiviral therapy

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## ALL PATIENTS WHO RECEIVED ANTIVIRALS AMANTADINE, TAMIFLU, OR ZANAMIVIR

PA	TIENT NAME		DISPENSED DATE	QUANTITY	DRUG NAME	<u>R2</u>	K NUMBI	<u>ER</u>
S	PHI		2006-02-07	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	Т9		
P			2005-11-30	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	ramiflu)po 75mg cap di		
F			2006-02-27	3	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	DI		
S			2006-02-02	7	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	DI	ры	
L			2005-10-17	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	Т8	PHI	
R			2006-03-01	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	Т9		
V			2006-03-31	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	S7		
Т			2006-02-15	10	OSELTAMIVIR (TAMIFLU)PO 75MG CAP	Т9		



## % of Encounters for Influenza-like

TOTALS SINCE OCTOBER 2005

CLINIC NAME	FLU APPTS	TOTAL APPTS	% INFLUENZA
ADOLESCENT & YOUNG ADULT CLIN	5	2896	0.17
SY OCCUPATIONAL HEALTH CLINIC	4	7898	0.05
HC FAMILY PRACTICE FALCON	1	12344	0.01
KB AVIATION MEDICINE CLINIC	4	5790	0.07
PEDIATRIC INFECTIOUS DISEASE	1	304	0.33
SDS ENT	1	712	0.14
PULMONARY CLINIC	1	2958	0.03
INFECTIOUS DISEASE CLINIC	5	1815	0.28
ADULT MEDICINE CLINIC	12	28283	0.04
SB SOLDIER ASSISTANCE CENTER	1	9112	0.01
PH FAM PRAC	4	17186	0.02
EMERGENCY RM	29	27824	0.1
KB IMMUNIZATIONS CLINIC	2	4646	0.04
PEDIATRIC HEMATOLOGY ONCOLOGY	2	733	0.27
FAMILY PRACTICE CLINIC TAMC	13	32225	0.04
PH PRIMARY CARE CLINIC	3	22885	0.01
PEDIATRIC CLINIC	5	14390	0.03
OBSTETRICS	4	18883	0.02
SB ACUTE CARE CLINIC	4	9926	0.04
SB FAMILY PRACTICE SERVICE	20	32025	0.06
PH PEDS CLINIC	27	15078	0.18
IBWA CLINIC 0052	5	34651	0.01
KB FAMILY PRACTICE CLINIC	2	13222	0.02







# Additional reports under

development

Orde r	Prior to scheduled database development effort
1	Of all visits to TAMC (MONTHLY), how many came for influenza? - in progress
2	What is incident rate of influenza per clinic/ER? - in progress
3	Our accuracy rate: stacked bar chart (height = pts with iCD9 dx for time period (month), part of bar # with lab test, part with # pos lab test
4	Viral studies based on ICD9 dx
5	Patients with lab confirmation who got/did not get drug
1	until after database development effort (which will generate new report rements)
	Create form letter to those who have recovered explaining why they don't get new vaccine.



## Geographic Information Systems (GIS) Mapping

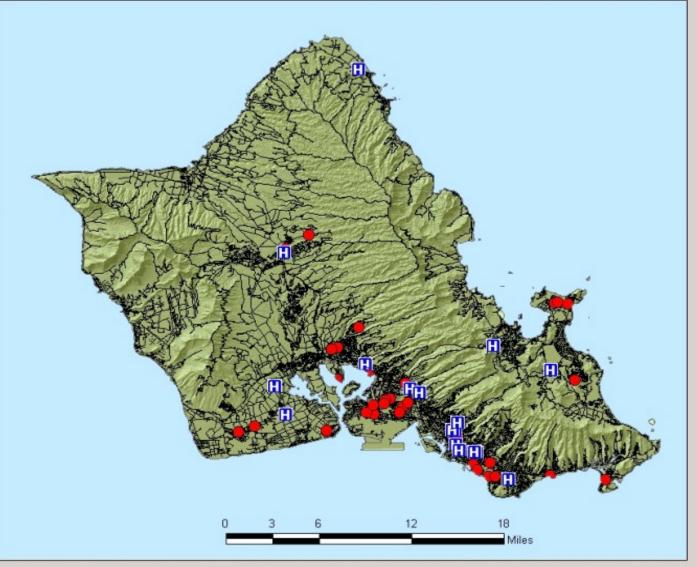
Phase 1 – Data elements to explore utility of GIS in

- Patient IDconjunction with Pacific Disaster Center (PDC)
- Date of onset (appt date)
- Icd9 = 487 series
- H5n1 confirmed? Y, N, ND placeholder since test not yet available
- Street address (nn or nn-nnn street) discussion how to protect privacy?
- City
- Zip
- Sex
- Age
- PAT CAT (private)
- Mil unit (private) ? Utility ? phase 2+
- Military treatment facility (MTF) (clinic) phase 1
- MTF address phase 1
- Discussion, do we want to send all clinical ICD9 dxs or those with pos tests (ie, in pandemic)?
  - Dr. Brumage says all clinical dxs. When in Pandemic, we need to track all visits for presumed flu. In addition, there will be less testing as a pandemic occurs.



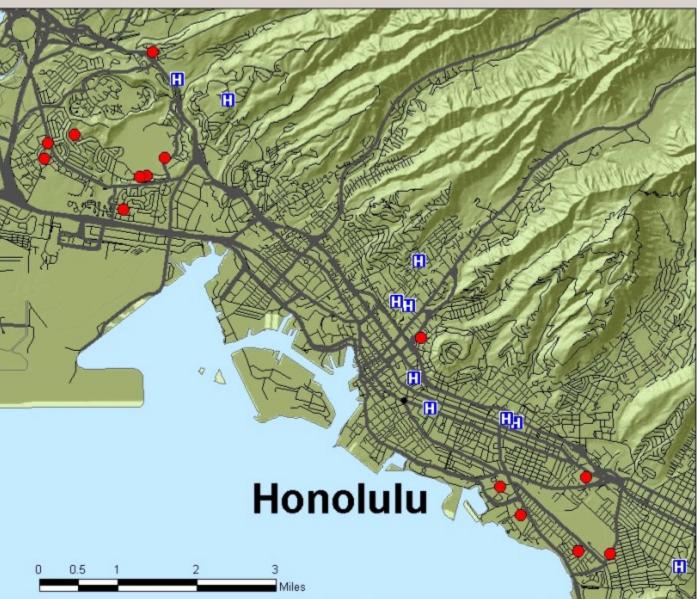
## Oahu Influenza Cases Overview

# Legend Hospitals Influenza Cases Major Roads Other Roads





## Oahu Influenza Cases



#### Legend

Hospitals

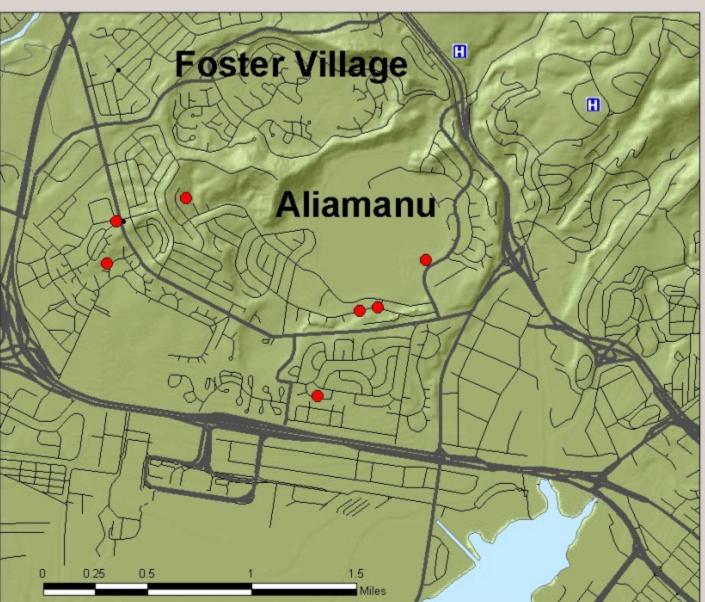
Influenza Cases

Major Roads

Other Roads



### Oahu Influenza Cases



#### Legend



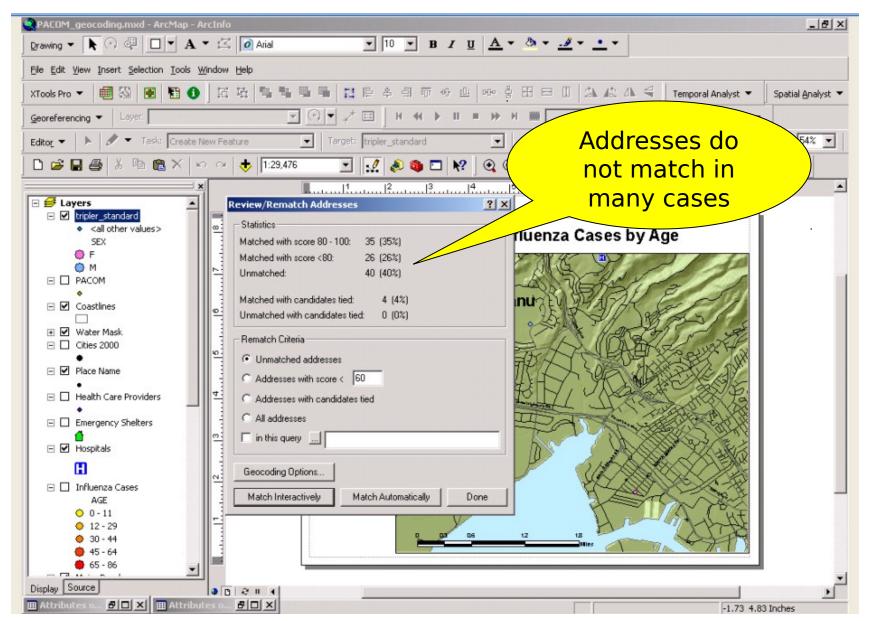
Influenza Cases

Major Roads

- Other Roads



## GIS - Lesson Learned





# Summary

- A DoD-unique solution to assist Oahu in managing near "real-time" pandemic influenza tracking
- Learn as we go
  - Rapid prototyping, rapid release methodology



# Pande influer racking in the DoD committy on Oahu

A prototype proj Prepared and Response Concepts a Le ons Learned

George H. Uncod, Jr., MD, COL (Ret)
Medical Informatics, Clinical Informatics
Section, Information Management Division,
Tripler Army Medical Center